PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, December 19, 1893.

The President, Dr. FRANCIS X. DERCUM, in the chair.

Dr. ERNEST LAPLACE read a paper on

A CASE OF GUNSHOT WOUND OF THE HEAD, WITH A FORM OF APHASIA IN WHICH THE LOSS OF NOUNS IS THE MOST MARKED FEATURES. (*See page 191.*)

DISCUSSION OF DR. ERNEST LAPLACE'S CASE OF LOSS OF NOUNS.

By CHARLES K. MILLS, M. D.—In Dr. Laplace's case one of the chief features is the loss by the patient of the ability to make use of nouns, or at least of many nouns. At first sight the case might seem to be hysterical, but a close study of the phenomena, and the long persistence of a consistent symptomatology, are strong arguments against this assumption. The case can be explained in accordance with recorded facts, and on certain well-based theoretical considerations. The literature of aphasia contains a number of anthenticated cases—a few of which have gone the rounds of numerous publications—in which either the memory of nouns, or the faculty of using nouns in voluntary speech was lost. In 1887, Dr. Mary Putnam Jacobi, in a paper on *The Special Liability to Loss of Nouns in Aphasia*, published in the Journal of Nervous and Mental Diseases, as the results of the examination of the records of 116 cases, stated that 17 had this peculiar defect. These cases, most of which are well known to neurologists, are given in abstract. A few other cases are to be found in the medical literature of the last five year.

In many cases of aphasia the diminution or loss of facility and expertness in the use of nouns is a marked feature, but is associated usually with other striking disturbances of speech.

This peculiar liability to the loss of nouns has been discussed by our most eminent authorities on the subject of aphasia such as by Bouillaud, Broadbent, Kussmaul, Bateman, Ross, Jackson and Starr. It brings up an old question as to which parts of speech were first used, nouns or verbs, and the probable order in which the different parts of speech were added in the evolution of language.

The word-hearing centre is located in the posterior portions of the first and second temporal convolutions. The centre for word-vision is in all probability in the anterior part of the lateral aspect of the occipital lobe. The posterior part of the third frontal convolution is concerned with the arrangement of words and ideas, and close by is the convolution for the emission of speech. The existence of a separate area for concepts, or a "naming centre," as Broadbent has called it, is disputed, and this case is much to the point in discussing this question. Can we explain such a case in any other way than on the supposition of such a separate area? It seems to be difficult. The explanation of Ross is after all a practical admission of the existence of such a separate area. He says that it is not separate and distinct centre in the human brain, but that there is a higher organization or an expansion of the centres for word-hearing and word-vision; in the process of evolution the centre for word-hearing becomes enlarged and more highly organized; and similarly the visual area pushes outward and becomes larger and more developed, but, according to him, they are still parts of the same areas. We often become cognizant of an object and its name by the convergence of impressions from different centres, and the most rational supposition is that in process of time these pushings out from the original percept areas have become distinctly organized as a special intermediate area. Of two or three ways of explaining this case, one is by a destruction of the region where different lines converge to a common naming area.

A lesion of the lines of communication which go from this concept or naming region to the propositionizing area in Broca's convolution might partly bring about such a result. Although the patient would conceive the name of any object, he would be unable to carry the conception over to the emissive side of the brain because of the blocking of the connecting channels. An isolated lesion of the naming centre would cause a loss of memory of names; the patient would not recall in consciousness the names of the objects; but as the patient is able to hear the word, to see the word and to recognize it, it would seem rather that the lesion has destroyed the fibres between the naming area and the out-going centres, whatever else it has destroyed. That any one is able to copy a word that is set before her is in favor of the view of a separate concept area. In two ways impressions from the visual area can go to the propositionizing area in the brain; one is direct the other indirect by way of the concept centre. Suppose that the indirect route is destroyed and that the direct commissure is intact; this would explain the fact that she can copy; and if she could repeat from hearing words, then also the direct route from the auditory centre to the out-going centre would be intact; but she cannot do this, so it would seem in this case on the supposition of separate concept centres, that the lesion has destroyed not only the indirect, but also the direct route from the auditory area, and has left the direct route from the visual centre intact.

That which is destroyed by such a lesion as this, is power of naming a tangible object represented by a noun. The nouns representing abstract qualities like home, liberty, country, love, hope, etc., are not necessarily, and commonly are not incapable of being used in cases like this, because a mental picture the result of visual or other perceptions does not rise into consciousness when we use these nouns representing abstract qualities.

Personally I believe in the existence of a separate naming centre, or at least of an area peculiarly organized, and lying between the centres for percepts and for motor speech—I believe, with Broadbent, that impressions made by an object upon various perceptive centres, as, for instance, those of hearing, sight, and touch, converge to one common cell, zone or area in which a complex impression of the object, the idea or the mental picture of the object, looms into consciousness. If such an area exists it must be placed in such a position as to be in easy relation with the percept centres, and also intermediate between these and the outgoing centres for speech in the third frontal and adjoining convolutions.

This brings up the most interesting practical point in connection with a case like that presented by Dr.

Laplace, in which surgical procedure was tried, and in which the advisability of further operation is still under consideration, and that is as to the direction and location of the lesion producing this peculiar variety of aphasia. In one case of loss of nouns reported by Broadbent, the two posterior convolutions of the island of Reil had disappeared. The island of Reil or retro-insular convolutions, or perhaps the inferior parietal convolution, best fulfil the anatomical requirements. It seems to me probable that either directly by the bullet, or, more probably indirectly, by intra-cranial traumatism or hemorrhage the left insular lobe has been injured

Let me summarize and to some extent repeat. This patient recognizes what is said to her whether nouns or other parts of speech. She can read silently, understanding what she reads. She can copy silently understanding what she copies. She can speak a little spontaneously, and more in this way than she can from dictation. She can propositionize imperfectly without nouns of a certain kind. She cannot name objects the use and meaning of which she knows and of which she probably knows the name; she cannot write the same. The auditory centre and incoming auditory tract are intact so is the incoming visual tract and visual centre. The concept or naming centre may be partly preserved, because she has the idea of the thing, and she has the idea of the name. At first it was puzzling to understand why she did not use periphrase. Of the seventeen cases reported by Dr. Jacobi, while some of them periphrased very well, the majority did it poorly. In other words, the propositionizing power is impaired in a large number of these cases, and in some it is lost entirely The commissure between the naming and propositionizing areas is destroyed. She can enunciate words because Broca's centre is intact, but she cannot repeat from dictation. The direct route from the auditory centre to the convolution of Broca, as well as the indirect route to the naming centre is fractured. She cannot read aloud or will not; this is difficult to explain, but a possible explanation is that when we read aloud we verify what we are reading in consciousness by the auditory centre. It is well known that a communication exists between the visual area and the auditory area. She is unable to verify by her auditory centre that which she is able to pronounce through the motor cortex. The explanation is the same as that for many aphasics who talk jargon or gibberish. The lesion is then probably one destroying both the association fibres from the concept to the motor speech regions, and those which go directly from the auditory centre to the motor speech area; but it does not directly involve the latter.

In this connection I would like to report without comment a case of Amnesia for names following an Operation on the left Gasserian Ganglion.

The patient, a man seventy-six years of age, had during the past six years undergone five operations for the relief of trifacial neuralgia of the left side, the present one being the sixth.

On November 19th, by Dr. John B. Roberts, a horseshoe shaped opening about three and a half to four inches in extent, was chiseled into the side of his skull for the purpose of removing his gasserian ganglion; much pressure was made upon the brain to displace it in order to reach the ganglion. The second and third division of the fifth nerve were cut near to the ganglion and turned back into their respective foramina, the ganglion itself was not removed. On the second day after the operation it was noticed that the patient could not remember the name of the street he lived on, nor that of any other street in the neighborhood of his house; he could not remember the name of the hospital, nor of his doctors who had previously operated upon him. It took him quite a little while to remember the name of President Harrison and Cleveland, though he had been much interested in the political campaign. His memory of names gradually returned to him so that two weeks after the operation he knew the names of the streets etc., as well as he ever knew them.

The PRESIDENT.—I saw this case some time ago with Dr. Laplace but since then its character has changed considerably. At that time, the aphasia was greater than at present. It was in fact a complete or almost complete motor aphasia. The case struck me at that time as one of aphasis from concussion or psychic shock. We know that such aphasias actually occur and may be persistent. Of course the fact(?) that the case is a pure case of loss of noun memory, militates against this view, although not absolutely, for cases are on record where loss of memory of nouns has followed shock and there has been no reason to suspect special lesions. Whether in such cases there might be a molecular disturbance of a certain portion of the cortex which might be persistent, is a matter for speculation. On the other hand, looking at the case as an organic one, a clot may have formed and the change in the case would be accounted for by the partial absorption of the clot. I do not think that we can say absolutely whether or not there has been hemorrhage.

It is difficult for me to understand why she should be able to write certain names while she cannot write or pronounce from a book simple substantives.

With regard to the existence of an ideation centre (as I prefer to call it rather than a naming centre), the familiar diagram of Lichtheim answers very well to illustrate it. We have an impulse, say passing up the auditory nerve to the cortical centre for hearing and conducted by fibres beneath the Island of Reil to the third frontal convolution. Here the sound can simply be repeated, or emitted. No act of ideation is required in such a piece of apparatus. Every one of us can read sentences in a foreign language which we do not understand. Other portions of the cortex must be excited in order that sounds heard may be translated into ideas.

One peculiar feature about the case is that she does not attempt to periphrase in order to avoid the use of nouns. If she has a memory of verbs, she should be able to say what is done with certain objects. We might explain her inability to read from a book in this way—her power for repeating nouns is gone, but the power for repeating verbs is present though impaired. If she *hears* a verb repeated the motor speech centre is much more stimulated than when she simply *sees* the printed symbols. If the case be one of concussion it is strange that it is so purely a loss of noun memory as it is; if it be organic, it is strange that it presents the peculiarities that it does.

We should remember the fact that this girl was shot under circumstances of the most profound emotional excitement. When I first saw her, the condition suggested hysteria rather than any serious lesion. The aphasia was apparently complete except for a few words, such as yes and no. There was no palsy nor any other symptoms. It looked like a psychic case and this view would be favored by the partial recovery. Whether or not hysteria would explain this case, is a subject open to a good deal of discussion.

Dr. WHARTON SINKLER.—One explanation of the ability to write Dr. Keen's name would be that of visual impression. The patient had read the name just before she was asked to write it, and may have had a mental picture of it before her.

There are several facts that make it difficult to accept the theory of an organic lesion in this case. In the first place, if the bullet is located, as is very probable, within two inches of the point of the entrance, how can we have a lesion so far back that it can affect the speech centre? Moreover, could the bullet penetrate the brain to the speech centre, without producing some other localizing symptoms? In the second place, I do not feel sure that we have established the facts as to whether she could not or would not read and write nouns.

Adjourned.

THE CHICAGO MEDICAL SOCIETY.

Regular meeting at Washington Hall, Nov. 7, 1892.

The minutes of the preceding meeting were read and approved.

The Committee on Membership reported favorably on the applications of Dr. G. W. Green, Ravenswood, Ill; J. A. Clark, 900 W. 21st St., and M. M. Ritter, 194 S. Lincoln St., Chicago, and on motion the Secretary cast the ballot of the Society for their election.

The applications of Drs. M. B. Sincere, W. C. Wermuth, Franklin C. Wells, Clement Pierce, A. F. Sippy, H. F. Kortebein and D. D. Bishop were read and referred to the Committee on Membership.

A CASE OF CEREBRAL SURGERY, WITH EXHIBITION OF PATIENT.

Dr. ARCHIBALD CHURCH.—The patient I am privileged to present to you is one of considerable interest from the point of brain surgery in regard to athetosis. She is a child of twelve years and has never had any physical illness at all. She was born without particular difficulty, and during the first two and a half years of life was a bright, active, intelligent child. At that time, following a fright, she lay for a number of weeks in a practically unconscious condition, which was called by the